

thereof and extending at right angles to each other and having a large number of electron beam passage apertures,

a mask frame to which the periphery of the shadow mask body is fixed, and

an auxiliary mask in the form of a strip extending in the direction of the minor axis, being fixed to a region containing the minor axis of the effective portion, having a number of electron beam passage apertures communicating individually with the electron beam passage apertures of the effective portion, and having a crosswise dimension smaller than a length of the effective portion in the direction of the major axis.

REMARKS

Favorable reconsideration of this application, as presently amended and in light of the following discussion, is respectfully requested.

Claims 1-16 are presently active; Claim 16 having been added by the present amendment. Support for new Claim 16 can be found at least in Figures 4 and 7, and in Claims 1 and 4 as originally filed. No new subject matter has been introduced by the addition of Claim 16.

In the Office Action, Claims 1, 6, 7, and 9-14 were rejected under 35 U.S.C. §102(b) as anticipated by Yamamoto (U.S. Patent No. 5,079,477). Claims 2-5, 8, and 15 were objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form.

Applicants note with appreciation the Examiner's indication that Claims 2-5, 8, and 15 contain allowable subject matter.

Claim 1 recites, among other features, an auxiliary mask in the form of a strip extending in the direction of the minor axis, fixed to a region containing the minor axis of the effective portion, and having a number of electron beam passage apertures communicating

individually with the electron beam passage apertures of the effective portion. Referring to the non-limiting aspect illustrated in Figure 7, auxiliary mask 20 is arranged in the form of a strip and has a longitudinal axis in the minor axis represented by Y. Effective portion 13 has a longitudinal axis in the major axis represented by X. Auxiliary mask 20 has a width less than a longitudinal length of effective portion 13.¹ As shown in the non-limiting aspect illustrated in Figure 6, each of apertures 26 in auxiliary mask 20 communicates individually with an aperture 12 of effective portion 13.

Thus, Claim 1 provides for an auxiliary mask that increases the mechanical strength of a shadow mask.² Because the auxiliary mask does not extend across an entire portion of an effective area, but only along a portion of the effective area in the minor axis, the problem of accurately aligning the positions of apertures is avoided.³

Yamamoto does not teach or suggest Claim 1. Referring to Figures 1 and 2, Yamamoto discloses a slot type shadow mask 3 (Figures 1 and 2), where a front plate 4a and a rear plate 4b are joined together to form a mask plate member 4. Slot holes 5a of front plate 4a and slot holes 5b of rear plate 4b are arranged such that bridges 6a and 6b divide the slot holes when plates 4a and 4b are joined.⁴

In contrast to Claim 1, Yamamoto fails to disclose an auxiliary mask in the form of a strip extending in the direction of the minor axis, as recited in Claim 1. Rather, Yamamoto is completely silent as to the shape of front and rear plates 4a and 4b, and appears to suggest that these elements have similar if not identical shapes (“The plates 4a and 4b are joined to each other by spot welding the peripheral edge portions...”).⁵ Yamamoto certainly does not disclose that either front plate 4a or rear plate 5b is in the form of a strip extending in the

¹ See also Specification at Fig. 4.

² Specification at page 12, lines 9-12.

³ E.g., Specification from page 15, line 16, to page 17, line 14.

⁴ Yamamoto at col. 3, lines 46-57.

⁵ Yamamoto at col. 3, lines 60-62.

direction of a minor axis of the other plate. Claim 1, in contrast, provides for an auxiliary mask that is strip-shaped and extends along a minor axis of a shadow mask.

Also, Yamamoto fails to disclose a number of electron beam passage apertures (of an auxiliary mask) communicating individually with the electron beam passage apertures of the effective portion, as recited in Claim 1. Instead, in Yamamoto, each slot hole 5a or 5b communicates with two other slot holes on the other plate, not another individual slot hole.

As Yamamoto does not disclose each and every feature of Claim 1, Yamamoto fails to anticipate Claim 1. Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejection of Claim 1 under 35 U.S.C. §102(b). Claims 2-15 depend from Claim 1 and are patentable for at least the reasons discussed above.

New Claim 16 recites, among other features, an auxiliary mask in the form of a strip extending in the direction of the minor axis, being fixed to a region containing the minor axis of the effective portion, having a number of electron beam passage apertures communicating individually with the electron beam passage apertures of the effective portion, and having a crosswise dimension smaller than a length of the effective portion in the direction of the major axis.

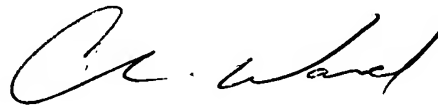
For at least the reasons discussed above with respect to Claim 1, new Claim 16 is also patentable over Yamamoto. Additionally, Yamamoto does not disclose that a crosswise dimension of an auxiliary mask is smaller than a length of an effective portion in the direction of the major axis, as recited in new Claim 16. Rather, as discussed above, Yamamoto appears to suggest that front and rear plates 4a and 4b are of the same width and length.⁶

⁶ Yamamoto at col. 3, lines 60-62.

Consequently, in light of the above discussion and in view of the present amendment, the present application is believed to be in condition for allowance and an early and favorable action to that effect is respectfully requested.

Respectfully submitted,

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